IN THE CLAIMS:

The following listing of claims will replace all prior versions, and listings, of claims in the application.

1.-97. (Cancelled)

98. (New) A computer implemented method for locating regions of a target image that match a template image with respect to color characterization, the method comprising:

performing a color characterization analysis of the template image to determine color features of the template image;

performing a color characterization analysis for a plurality of regions within the target image to generate color characterization information for each of the target image regions;

searching for regions of the target image having a color characterization that matches, at least to a degree, the color characterization of the template image;

wherein the color characterization analysis performed for the template image and the color characterization analyses performed for each of the plurality of regions of the target image comprise:

assigning each of at least a subset of pixels to at least one color category that corresponds to a portion of a hue, saturation, and intensity (HSI) color space;

determining information indicative of the allocation of the assigned pixels across color categories.

99. (New) The method of claim 98, further comprising:

generating information specifying a location for each region of the target image that matches the color features of the template image.

100. (New) The method of claim 98, further comprising:

for at least one region of the target image that matches the color features of the template image, displaying information on a graphical user interface indicating a location of the region within the target image.

101. (New) The method of claim 98, further comprising:

for at least one region of the target image that matches the color features of the template image, displaying information on a graphical user interface indicating a degree to which color information of the region matches color information of the template image.

102. (New) The method of claim 98, further comprising:

receiving the target image;

wherein the target image is received from one of the group consisting of:

a memory medium, a hardware device, and a software application.

103. (New) The method of claim 98,

wherein either of the template image or the target image is a portion of a larger image.

104. (New) The method of claim 98, the method further comprising:

receiving user input specifying search criteria to use in searching through the target image;

wherein the user input determines one or more parameters affecting said searching for regions of the target image having a color characterization that matches, at least to a degree, the color characterization of the template image.

105. (New) The method of claim 98,

wherein said searching for regions of the target image having a color characterization that matches, at least to a degree, the color characterization of the template image comprises:

performing multiple search passes through the target image according to a coarse-to-fine search heuristic.

106. (New) The method of claim 98,

wherein said searching for regions of the target image having a color characterization that matches, at least to a degree, the color characterization of the template image comprises:

performing a first-pass search through the target image to find initial match candidate areas;

performing one or more subsequent search passes in which proximal regions proximal to the candidate areas are searched in order to find a best-matching region in the proximal region.

107. (New) The method of claim 98, further comprising:

determining a step size;

wherein said searching for regions of the target image having a color characterization that matches, at least to a degree, the color characterization of the template image comprises determining locations for the plurality of regions within the target image for which the color characterization analysis is performed;

wherein the step size is used in said determining locations for the plurality of regions within the target image.

108. (New) The method of claim 98, further comprising:

determining a sub-sampling size;

wherein the sub-sampling size is used to determine the size of the at least a subset of pixels examined for each of the plurality of regions of the target image.

109. (New) The method of claim 98,

wherein the color characterization analysis performed for the template image comprises examining color information of each pixel in the template image; and

wherein the color characterization analyses performed for each of the plurality of regions of the target image comprise examining color information of only a subset of the pixels in the region.

110. (New) The method of claim 98, further comprising:

converting either of the template image or the target image to HSI format.

111. (New) The method of claim 98,

wherein said assigning each examined pixel to a color category that corresponds to a portion of HSI color space further comprises:

determining if the examined pixel can be categorized as either black, gray, or white based on one or more of saturation and intensity values of the respective pixel;

assigning the examined pixel to a black, gray, or white category if the examined pixel can be categorized as black, gray, or white, respectively;

determining a color category for the examined pixel based on one or more of hue and saturation values of the examined pixel, if the examined pixel cannot be categorized as either black, gray, or white.

112. (New) The method of claim 98, further comprising:

receiving user input specifying a desired color sensitivity level to use in locating target image regions that match the template image;

wherein the user input determines a number of categories into which the HSI color space is divided.

113. (New) The method of claim 98,

wherein said searching for regions of the target image having a color characterization that matches, at least to a degree comprises:

for each color category of the color space, comparing the percentage of template image pixels assigned to the color category to the percentage of target image region pixels assigned to the color category.

114. (New) The method of claim 98,

wherein the color characterization analysis performed for the template image further comprises determining one or more dominant color categories, wherein the one or more

dominant color categories are assigned a relatively larger proportion of examined pixels, with respect to other color categories of the color space.

115. (New) The method of claim 114,

wherein said searching for regions of the target image having a color characterization that matches, at least to a degree comprises:

for each dominant color category, comparing the percentage of template image pixels assigned to the dominant color category to the percentage of target image region pixels assigned to that color category.

116. (New) The method of claim 98,

wherein the color characterization analysis performed for each of the plurality of regions of the target image further comprises performing a smoothing operation after said assigning each examined pixel to a color category;

wherein the smoothing operation comprises:

for each respective color category of at least a subset of the possible color categories, re-distributing a portion of the pixels assigned to the respective color category to one or more neighboring color categories.

117. (New) A system for locating regions of a target image that match a template image with respect to color and pattern information, the system comprising:

a processor;

a memory medium coupled to the processor, wherein the memory medium stores color match location software;

wherein the processor is operable to execute the color match location software to:

perform a color characterization analysis of the template image to determine color features of the template image;

perform a color characterization analysis for a plurality of regions within the target image to generate color characterization information for each of the target image regions;

search for regions of the target image having a color characterization that matches, at least to a degree, the color characterization of the template image;

wherein to perform the color characterization analysis for the template image and for each of the plurality of regions of the target image, the processor is operable to execute the color match location software to:

assign each of at least a subset of pixels to at least one color category that corresponds to a portion of a hue, saturation, and intensity (HSI) color space;

determine information indicative of the allocation of the assigned pixels across color categories.

118. (New) The system of claim 117, wherein the processor is operable to execute the color match location software to:

for at least one region of the target image that matches the color features of the template image, display information on a graphical user interface indicating a degree to which color information of the region matches color information of the template image.

119. (New) The system of claim 117, further comprising:

a display device;

wherein, for each region of the target image that is determined to match the color features of the template image, the processor is operable to display information on a graphical user interface indicating a location of the region within the target image.

120. (New) The system of claim 117,

wherein to search for regions of the target image having a color characterization that matches, at least to a degree, the color characterization of the template image, the processor is operable to execute the color match location software to:

for each color category of the color space, compare the percentage of template image pixels assigned to the color category to the percentage of target image region pixels assigned to the color category.

121. (New) The system of claim 117, wherein to assign each examined pixel to a color category, the processor is operable to execute the color match location software to:

determine contributions which the pixel should make to a plurality of color categories; and

distribute the weight of the pixel across the plurality of color categories in accordance with the determined contributions.

122. (New) The system of claim 117,

wherein, to search for regions of the target image having a color characterization that matches, at least to a degree, the color characterization of the template image, the processor is operable to execute the color match location software to perform multiple search passes according to a coarse-to-fine search heuristic.

123. (New) The system of claim 117,

wherein, to search for regions of the target image having a color characterization that matches, at least to a degree, the color characterization of the template image, the processor is operable to execute the color match location software to:

perform a first-pass search through the target image to find initial match candidate areas; and

perform one or more subsequent search passes in which proximal regions proximal to the candidate areas are searched in order to find a best-matching region in the proximal region.

124. (New) The system of claim 117,

wherein the processor is operable to execute the color match location software to receive the target image from one of:

a memory medium and a hardware device.

125. (New) The system of claim 117,

wherein either of the template image or the target image is a portion of a larger image.

126. (New) The system of claim 117, wherein the processor is operable to execute the color match location software to:

receive user input specifying search criteria to use in the search for regions of the target image having a color characterization that matches, at least to a degree, the color characterization of the template image;

wherein the user input determines one or more parameters affecting the search for regions of the target image having a color characterization that matches, at least to a degree, the color characterization of the template image.

127. (New) The system of claim 117, wherein the processor is operable to execute the color match location software to:

determine a step size;

wherein to search for regions of the target image having a color characterization that matches, at least to a degree, the color characterization of the template image, the processor is operable to execute the color match location software to:

determine locations for the plurality of regions within the target image for which the color characterization analysis is performed, using the step size.

128. (New) The system of claim 117, wherein the processor is operable to execute the color match location software to:

determine a sub-sampling size;

wherein the sub-sampling size is used to determine the size of the at least a subset of pixels for each of the plurality of regions of the target image.

129. (New) The system of claim 117,

wherein to perform the color characterization analysis for the template image, the processor is operable to execute the color match location software to:

examine color information of each pixel in the template image; and

wherein perform the color characterization analysis for each of the plurality of regions of the target image, the processor is operable to execute the color match location software to:

examine color information of only a subset of the pixels in the region.

130. (New) The system of claim 117, wherein the processor is operable to execute the color match location software to:

convert either of the template image or the target image to HSI format.

131. (New) The system of claim 117,

wherein to assign each of at least a subset of pixels to at least one color category that corresponds to a portion of HSI color space, the processor is operable to execute the color match location software to:

determine if the pixel can be categorized as either black, gray, or white based on one or more of saturation and intensity values of the respective pixel;

assign the pixel to a black, gray, or white category if the pixel can be categorized as black, gray, or white, respectively;

determine a color category for the pixel based on one or more of hue and saturation values of the examined pixel, if the pixel cannot be categorized as either black, gray, or white.

132. (New) The system of claim 117, wherein the processor is operable to execute the color match location software to:

receive user input specifying a desired color sensitivity level to use in locating target image regions that match the template image;

wherein the user input determines a number of categories into which the HSI color space is divided.

133. (New) The system of claim 117, wherein to perform the color characterization analysis for the template image, the processor is operable to execute the color match location software to:

determine one or more dominant color categories, wherein the one or more dominant color categories are assigned a relatively larger proportion of pixels, with respect to other color categories of the color space.

134. (New) The system of claim 133, wherein to search for regions of the target image having a color characterization that matches, at least to a degree, the color characterization of the template image, the processor is operable to execute the color match location software to:

for each dominant color category, compare the percentage of template image pixels assigned to the dominant color category to the percentage of target image region pixels assigned to that color category.

135. (New) The system of claim 117,

wherein to perform the color characterization analysis for each of the plurality of regions of the target image, the processor is operable to execute the color match location software to:

perform a smoothing operation after said assigning each pixel to a color category;

wherein to perform the smoothing operation the processor is operable to execute the color match location software to:

for each respective color category of at least a subset of the possible color categories, re-distribute a portion of the pixels assigned to the respective color category to one or more neighboring color categories.

136. (New) A computer accessible memory medium that stores program instructions for locating regions of a target image that match a template image with re spect to color characterization, wherein the program instructions are computer-executable to:

perform a color characterization analysis of the template image to determine color features of the template image;

perform a color characterization analysis for a plurality of regions within the target image to generate color characterization information for each of the target image regions;

search for regions of the target image having a color characterization that matches, at least to a degree, the color characterization of the template image;

wherein to perform the color characterization analysis for the template image and for each of the plurality of regions of the target image, the program instructions are computer-executable to:

assign each of at least a subset of pixels to at least one color category that corresponds to a portion of a hue, saturation, and intensity (HSI) color space; and

determine information indicative of the allocation of the assigned pixels across color categories.

137. (New) The memory medium of claim 136, wherein the program instructions are further computer-executable to:

for at least one region of the target image that matches the color features of the template image, display information on a graphical user interface indicating a location of the region within the target image.

138. (New) The memory medium of claim 136, wherein the program instructions are further computer-executable to:

for at least one region of the target image that matches the color features of the template image, display information on a graphical user interface indicating a degree to which color information of the region matches color information of the template image.

139. (New) The memory medium of claim 136, wherein to search for regions of the target image having a color characterization that matches, at least to a degree, the color characterization of the template image, wherein the program instructions are further computer-executable to:

for each color category of the color space, compare the percentage of template image pixels assigned to the color category to the percentage of target image region pixels assigned to the color category.

140. (New) The memory medium of claim 136, wherein to assign each examined pixel to a color category, wherein the program instructions are further computer-executable to:

determine contributions which the pixel should make to a plurality of color categories; and

distribute the weight of the pixel across the plurality of color categories in accordance with the determined contributions.

141. (New) The memory medium of claim 136,

wherein, to search for regions of the target image having a color characterization that matches, at least to a degree, the color characterization of the template image, wherein the program instructions are further computer-executable to perform multiple search passes according to a coarse-to-fine search heuristic.

142. (New) The memory medium of claim 136,

wherein to perform the color characterization analysis for the template image, wherein the program instructions are further computer-executable to:

determine one or more dominant color categories, wherein the one or more dominant color categories are assigned a relatively larger proportion of pixels, with respect to other color categories of the color space.

143. (New) The memory medium of claim 142, wherein to search for regions of the target image having a color characterization that matches, at least to a degree, the color characterization of the template image, wherein the program instructions are further computer-executable to:

for each dominant color category, compare the percentage of template image pixels assigned to the dominant color category to the percentage of target image region pixels assigned to that color category.

144. (New) The memory medium of claim 136,

wherein either of the template image or the target image is a portion of a larger image.

145. (New) The memory medium of claim 136, wherein the program instructions are further computer-executable to:

receive user input specifying search criteria to use in the search for regions of the target image having a color characterization that matches, at least to a degree, the color characterization of the template image;

wherein the user input determines one or more parameters affecting the search for regions of the target image having a color characterization that matches, at least to a degree, the color characterization of the template image.

146. (New) The memory medium of claim 136, wherein the program instructions are further computer-executable to:

determine a step size;

wherein to search for regions of the target image having a color characterization that matches, at least to a degree, the color characterization of the template image, the processor is operable to execute the color match location software to:

using the step size to determine locations for the plurality of regions within the target image for which the color characterization analysis is performed.

147. (New) The memory medium of claim 136, wherein the program instructions are further computer-executable to:

determine a sub-sampling size;

wherein the sub-sampling size is used to determine the size of the at least a subset of pixels for each of the plurality of regions of the target image.

148. (New) The memory medium of claim 136, wherein to assign each of at least a subset of pixels to at least one color category that corresponds to a portion of HSI color space, wherein the program instructions are further computer-executable to:

determine if the pixel can be categorized as either black, gray, or white based on one or more of saturation and intensity values of the respective pixel;

assign the pixel to a black, gray, or white category if the pixel can be categorized as black, gray, or white, respectively;

determine a color category for the pixel based on one or more of hue and saturation values of the examined pixel, if the pixel cannot be categorized as either black, gray, or white.

149. (New) A computer implemented method for locating regions of a target image that match a template image with respect to color characterization, the method comprising:

determining color features of the template image;

locating one or more regions of the target image that match the color features of the template image;

for at least one region of the target image that matches the color features of the template image, displaying information on a graphical user interface indicating a degree to which color information of the region matches color information of the template image.

150. (New) A system for locating regions of a target image that match a template image with respect to color characterization, comprising:

means for determining color features of the template image;

means for locating one or more regions of the target image that match the color features of the template image;

means for, for at least one region of the target image that matches the color features of the template image, displaying information on a graphical user interface indicating a

degree to which color information of the region matches color information of the template image.

151. (New) A computer accessible memory medium that stores program instructions for locating regions of a target image that match a template image with re spect to color characterization, wherein the program instructions are computer-executable to:

determine color features of the template image;

locate one or more regions of the target image that match the color features of the template image;

for at least one region of the target image that matches the color features of the template image, display information on a graphical user interface indicating a degree to which color information of the region matches color information of the template image.